REMARKS/ARGUMENTS

Entry of this amendment will place the application in condition for allowance.

Claim 1-3, 5-12, and 14, 15 and 18 were pending in the instant application. No claims have been added. Claims 2 and 11 have been cancelled. Therefore, upon entry of the present Amendment, claims 1, 3, 5-10, 12, and 14, 15 and 18 will be pending.

Claim Objections

Claims 1 and 15 are objected to due to informalities. Applicants have corrected the informalities.

Claim Rejections - 35 USC § 103

Claims 1-2, 5, 9-11, 14, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohindra (United States 7,035,341) in view of Vassiliou et al (2004/0106380), and further in view of Mohindra (United States 6,744,829). Applicants traverse this rejection.

According to the present invention, using lowpass filters presents the advantage that all I/Q receivers typically require lowpass filters for anti-alising before the A/D converter. They do not require allpass filters. On the contrary, Mohindra requires the use of allpass filtering in addition to lowpass filtering. Therefore, Mohindra teaches away from using lowpass filters to adjust the adjustable characteristic for reducing the frequency dependent I/Q phase error.

Furthermore, Mohindra does not comprehend the favorable attributes (in terms of IQ correction) of adjusting the cutoff frequency of the lowpass filter. The present invention enables cutoff frequency of lowpass filters to be used to correct IQ phase imbalance. It should be kept in mind that it is possible to have a situation where the filters

have the same cutoff frequency but still have significant phase imbalance. By adjusting the cutoff frequency of one filter away from the other, this imbalance can be reduced. It is not implied that when the cutoff frequencies are equal, the IQ phase imbalance is minimized.

The Examiner has opined regarding claim 1 that Mohindra (341) does not expressly teach:

At least one of the I and Q lowpass filters having an adjustable characteristic…;

A correlator for cross correlating said I and Q output tones for providing a cross correlation feedback signal… .

However, the Examiner combines the teachings of both Mohindra and Vassiliou to conclude that claim 1 is obvious. Combining Mohindra and Vassiliou would require believing that cutoff frequency and phase imbalance have identical effects. But in general they do not. As a matter of fact, the cutoff frequency is just one point in the frequency response. Phase imbalance takes place all through the passband of the filter and the worst case phase imbalance may not be at the cutoff frequency. Adjusting for filter mismatch (i.e. cutoff frequency mismatch) is not the same as adjusting for phase imbalance.

Accordingly, Applicants have amended claim 1 by adding the additional limitation of previously presented claim 2. Therefore, currently claim will specify that the cross correlation feedback signal adjusts the adjustable characteristic for minimizing a phase difference between the I output tone and the Q output tone in addition to the reduction of the frequency dependent I/Q phase error.

Therefore, by combining Mohindra and Vassiliou, a man skilled in the art will not be able to come to the solution as claimed in currently amended claims 1 and 10.

Claims 3, 5, 6 and 9 are dependent, directly or indirectly upon allowable claim 1.

Claim 10 has been also been amended to specifically recite the limitation of previously presented claim 11 regarding minimizing a phase difference between said I output tone and said Q output tone.

Claims 12, and 14, 15, 18 are dependent, directly or indirectly upon allowable claim 10.

In light of the above, it is respectfully submitted that the present application is in condition for allowance, and notice to that effect is respectfully requested.

While it is believed that the instant response places the application in condition for allowance, should the Examiner have any further comments or suggestions, it is respectfully requested that the Examiner contact the undersigned in order to expeditiously resolve any outstanding issues.

Respectfully submitted:
/Tum Thach/

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